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First description of *Oidium neolycopersici* (*Erysiphaceae*) in France, on a new host plant extinct in the wild

David Delmail[1,2*] & Jean-Luc Autret[2]

**david.delmail@wanadoo.fr*

[1] *University of Limoges, Faculty of Pharmacy, Laboratory of Botany & Cryptogamy GRESE EA 4330, 2 rue du Docteur Marcland, F-87025 Limoges, France*

[2] *National Botanical Conservatory of Brest 52 allée du Bot, F-29200 Brest, France*

Abstract —The first description of *Oidium neolycopersici* (*Erysiphaceae*) discovered on a Madeiran plant now extinct in the wild, *Normania triphylla* (*Solanaceae*), is provided. The pathogen was collected from the National Botanical Conservatory of Brest in western France.

Key words — *Erysiphales*, mildew, *Solanales*, Madeira

Normania triphylla Lowe plants (*Solanaceae*) cultivated in the greenhouse at the National Botanical Conservatory of Brest (NBCB) showed signs of powdery mildew. This Madeiran plant is extinct in the wild and currently the only ex situ culture exists at the NBCB. Recently several dense and discontinuous white patches were observed on the leaf upper epidermis of 47% of individuals. These characteristics were easily differentiated from symptoms caused by *Leveillula taurica,* which can readily affect *Solanaceae,* a fungus considered to be the unique agent of powdery mildew on *N. triphylla* in France up to now that causes white powdery masses appearing just under the chlorotic spots that are produced on the adaxial leaf surface.

To determine the morphological characteristics of the pathogen affecting *N. triphylla*, the surface mycelium was removed with adhesive tape and examined under optical microscope. Microscopic observations revealed exclusively solitary ellipsoid conidia (29.3 × 13.5 µm) germinating with one short germ tube terminating in simple apices (Fig. 1A). Conidiophores were straight, with cylindrical foot cells (43.0 × 9.3 µm), sometimes followed by a longer cell and one or two shorter cells (Fig. 1B). Fibrosin bodies and chasmothecia were not observed. Based on these characteristics the fungus was

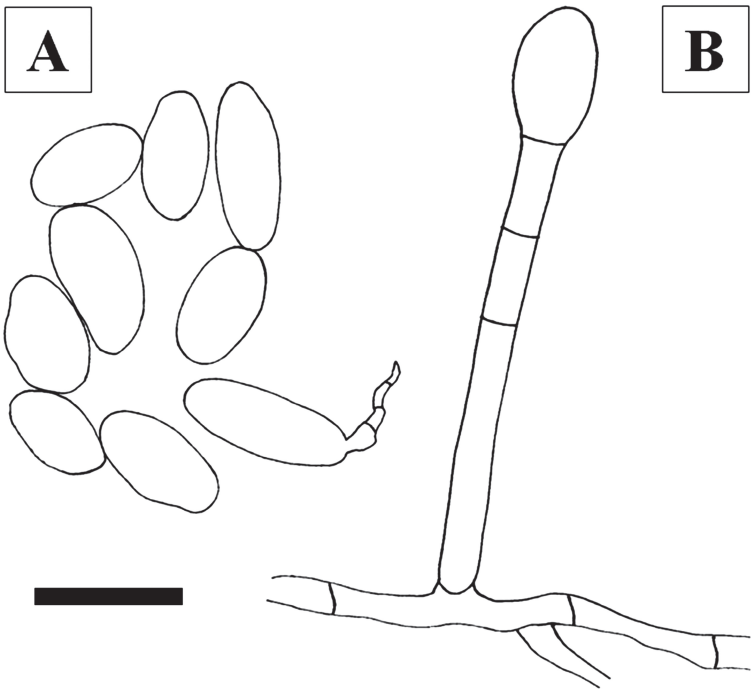

Fig. 1 A–B. Drawings of *Oidium neolycopersici* specimens observed on *Normania triphylla*. A. Free conidia with a germinating conidium. B. Conidium developing singly on conidiophore. Scale bar represents 30 µm.

identified as *Oidium neolycopersici* L. Kiss (Kiss et al. 2001). This species has been reported as occurring on host plants in the *Solanaceae* (*Solanum betaceum* and *S. lycopersicum*) family in Asia (Baiswar et al. 2009; Kiss et al. 2001; Li et al. 2008, Yolageldi et al. 2008), Australia, Tanzania, the French Caribbean (Kiss et al. 2001), North America (Kiss et al. 2001; Kiss et al. 2005), and Europe (Ivic et al. 2009; Kiss et al. 2001). Specimens were identified on tomato in West Europe by sequencing by Kiss et al. (2001) in France (specimen examined: BPI 747013; database accession number: AF229019) and Netherlands (specimen examined: VPRI 20724; database accession number: AF229015).

To confirm the pathogenicity, 15 healthy *N. triphylla* plants were inoculated with conidia from infected plants and then kept in a polypropylene (PP) chamber placed in a greenhouse cabinet at 25 ± 1°C and a 15-h photoperiod for 7 days. The PP chamber was then removed and plants grown in the greenhouse. After 9 days, powdery mildew symptoms appeared on the inoculated leaves of the plants and the morphological characteristics of the reisolated pathogen were the same as those observed on the naturally infected plants.

This is the first report of powdery mildew caused by *O. neolycopersici* on *N. triphylla* in France. This disease has the potential to be extremely virulent (Jones et al. 2001) and may become a problem in ex situ cultures of *N. triphylla*. These cultures are essential because reintroduction attempts, which have failed until now, will help researchers learn how *N. triphylla* might again grow wild in the laurel forest of Madeira.

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Literature cited

Baiswar P, Braun U, Chandra S, Ngachan SV. 2009. First report of an *Oidium sp.* [*neolycopersici*] on *Solanum betaceum* in India. Australasian Plant Disease Notes 4: 32–33.

Ivic D, Milicevic T, Cvjetkovic B. 2009. First Croatian report of powdery mildew on tomato caused by *Oidium neolycopersici*. Plant Pathology 58: 802. doi:10.1111/j.1365-3059.2009.02036.x

Jones H, Whipps JM, Gurr SJ. 2001. The tomato powdery mildew fungus *Oidium neolycopersici*. Molecular Plant Pathology 2: 303–309. doi:10.1046/j.1464-6722.2001.00084.x

Kiss L, Cook RTA, Saenz GS, Cunnington JH, Takamatsu S, Pascoe I, Bardin M, Nicot PC, Sato Y, Rossman AY. 2001. Identification of two powdery mildew fungi, *Oidium neolycopersici* sp. nov. and *O. lycopersici*, infecting tomato in different parts of the world. Mycological Research 105: 684–697. doi:10.1017/S0953756201004105

Kiss L, Takamatsu S, Cunnington JH. 2005. Molecular identification of *Oidium neolycopersici* as the causal agent of the recent tomato powdery mildew epidemics in North America. Plant Disease 89: 491–496. doi:10.1094/PD-89-0491

Li CW, Pei DL, Wang WJ, Ma YS, Wang L, Wang F, Liu JL, Zhu WM. 2008. First report of powdery mildew caused by *Oidium neolycopersici* on tomato in China. Plant Disease 92: 1370. doi:10.1094/PDIS-92-9-1370C

Yolageldi L, Sin B, Onogur E. 2008. First report of *Oidium neolycopersici* on tomatoes in Turkey. Plant Pathology 57: 373. doi:10.1111/j.1365-3059.2007.01723.x